

# **NASA Innovation Fund**

*Supporting early formulation of revolutionary concepts to benefit NASA missions and to meet other national and global challenges.*

## **Internal Call for Proposals – May 2009**

**Innovative Partnerships Program  
National Aeronautics and Space Administration  
Washington, DC**

# NASA Innovation Fund

## Internal Call for Proposals

### Background

The Innovative Partnerships Program (IPP) Office provides leveraged technology for NASA Mission Directorates, Programs and Projects through investments and technology partnerships with industry, academia, government agencies and national laboratories. As one of NASA's Mission Support Offices, IPP supports all four Mission Directorates and has program offices at each of the ten NASA Centers. IPP partnership goals include providing for an increased range of technology solutions, a broadened technology portfolio, improved cost avoidance, accelerated development and maturation of technologies and a larger pool of qualified commercial providers.

The NASA Innovation Fund is being established to provide support to NASA innovators in the early stages of formulating concepts for novel technologies and new processes which have the potential to revolutionize the way NASA performs its missions or to enable whole new capabilities in space flight, science, aeronautics and exploration. New technologies or processes for NASA that have the potential to also address other national and global challenges are of particular interest for this program. The projects being sought for this program are those that are too early in their development to compete for support from other NASA funding sources. The projects should be novel and unique but clearly grounded in sound science and engineering principles and offer reasonable potential for concrete applications of interest and value to NASA.

The inaugural phase of this program will support a small number of projects across the agency with modest, short-term funding. The intention in future years will be to support a larger number of projects and to provide extended funding for the most promising projects.

### Solicitation of Abstracts and Proposals and Selection Process

This call is soliciting proposals from across the agency. Employees should submit their ideas to the IPP Office at their center (see list below) in the form of a brief abstract. Each Center should specify the requirements and deadline for the abstract submission. Each Center IPP Office, working with their Center's Chief Technologist, Chief Engineer or equivalent representative, will coordinate prioritization of ideas from their Center and forward no more than five full proposals to the IPP Office at NASA Headquarters. Partnerships for proposals from multiple NASA Centers are encouraged.

The IPP Office at Headquarters, in coordination with the Office of the Chief Engineer and representatives from each of the Mission Directorates, will select a minimum of 16 proposals for funding. The performance period for the selected projects will begin as soon as selections are announced, expected to be around July 1, 2009. There will be approximately three months available for work on these projects. **All funds for the projects selected under this call shall be expended (obligated and costed) before September 30, 2009.**

## Scope

The maximum amount of funding for each project will be \$50,000. Proposals requesting a lower amount of funding are encouraged and an evaluation of the cost versus the expected benefit of each proposal will be a factor in selection. NASA centers or Mission Directorates can provide additional funding in support of proposals but the maximum cost of any proposal shall not exceed \$50,000, including the requested funding and any supplemental funding provided. Cost sharing through supplemental funding will increase the number of awards that can be made.

The funding is intended to primarily support civil service labor costs for specified employees working on these projects. A limited amount of funds can be expended on contractor labor, procurement or facility operations, but the non-civil service labor portion shall not exceed 50 percent of the total funding and all work must be completed by September 30, 2009.

Funding of selected proposals under this call is subject to availability of appropriated funds.

This program is intended to offer an opportunity for the most innovative NASA employees to spend some of their time pursuing “out-of-the-box” concepts that may not fit within the scope of their normal duties. The funding will allow these employees to perform some research, analysis and proof-of-concept work on novel and futuristic ideas. The expected result will be a clearer formulation of the concept that will allow for an informed appraisal of its merit for further development. The success of this program will not be measured by the success of each individual project but by the overall value of the viable ideas that do emerge. The ultimate goal is to see these ideas transform the way NASA and commercial aerospace enterprises do their work as well as finding beneficial applications in the world beyond.

The types of projects being sought include:

- “Out-of-the-box” approaches to performing existing operations or research activities
- Novel concepts for new capabilities that support NASA’s goals
- Revolutionary technologies or processes that can extend our nation’s leadership in the field of aerospace
- Technologies or processes that will promote growth in commercial aerospace activity
- Technologies or processes related to NASA missions that also address national and global challenges

The Office of the Chief Engineer has identified top priorities in transformational capabilities for NASA. These capabilities are listed below as a guide, although the range of proposals sought is not limited to these areas.

1. In-Space Transportation: advanced propulsion, entry, descent and landing systems, micrometeoroid and orbital debris protection

2. Communication: optical communication, forward link
3. Space Weather and Climatology: solar wind monitoring, improved predictive models, robotic equivalent to Space Radiation Advisory Group, Earth trailing sensors
4. Power Systems: nuclear fission, radioisotope, advanced solar, nano-energetics
5. Launch Systems: advanced propulsion, low-cost airframe, lower cost-to-orbit (\$400/kg goal)
6. Product Data Management and Product Lifecycle Management: computer-aided design interoperability and data product management

### **Reporting Requirements**

Selected project teams will be required to submit two status reports to the Center and Headquarters IPP Office, one at the end of July and one at the end August. Project teams will submit a final written report and be prepared to present the results of the project within one week of the completion of the project performance period or no later than October 6, 2009.

Project reports will be shared with the Mission Directorates and other Headquarters Offices and with appropriate programs and projects throughout the agency to encourage further consideration and follow-up activities for the most promising ideas.

The final project report, as a minimum, should include the following sections:

- Background: summary of the idea, technology or process and how the topic of the project will impact NASA goals or other national or global needs
- Approach: an outline of the specific objectives of the project: the analysis, testing or other tasks undertaken
- Results: the results of analysis, testing and other tasks, conclusions and recommendations
- Future Expectations: potential for follow-on activity, new partnerships, interest external to NASA.

### **Proposal Selection Criteria**

The following criteria will be used to evaluate the proposals. The criteria will all carry approximately equal weight in the selection process.

1. **Relevance and Value to NASA** – The idea’s relevance to future NASA missions and goals. The value of the idea relative to the investment required.
2. **Technical Merit** – The soundness of the scientific and engineering principles on which the idea is based and its viability as a future project for NASA.
3. **Potential Impact** – The degree to which the idea could significantly impact NASA or commercial aerospace activities by reducing cost, increasing effectiveness or creating a new capability. Also, the potential for this idea to impact other national or global challenges.
4. **Novelty** – The qualities of the idea that make it a new or unique approach.
5. **Team Experience** - The appropriate technical knowledge and experience of those who will work on this project.

## **Schedule**

Call for Proposals:	May 21, 2009
Abstracts to Center IPP Offices:	At discretion of each Center
Proposals due to NASA Headquarters:	June 19, 2009
Selection Announcement:	June 30, 2009
Period of Performance:	Begin July 1 and end no later than September 30, 2009

## **Proposal Format**

Each proposal shall be limited to two pages, not including resumes and letters of commitment. Proposals will follow the outline below and conform to the maximum length requirements for each section. Proposals that are incomplete or exceed the specified length may not be considered. Text shall be single-spaced, using 12 point Times New Roman font. Do not include a cover sheet.

Proposals shall contain the following information in this order:

1. **Project Title:** *(one-line maximum)*
2. **NASA Center(s):** *Lead Center and any partner Centers*
3. **Project Leader:** *Name, email address, phone number, organization name (this is the primary point-of-contact for the proposal)*
4. **Additional Team Members:** *Names, email addresses, phone numbers, organization names*
5. **Description of the Project:** *Explain the idea and how you intend to develop the proof-of-concept, demonstration or other efforts. The proposal must include an outline of specific analysis, research or testing tasks to be accomplished (300-word maximum)*
6. **Expected Impact for NASA:** *Explain how the idea could revolutionize a technology, process or operation in NASA or in commercial aerospace activities (100-word maximum)*
7. **Expected Impact Outside NASA:** *If applicable, explain how the idea could revolutionize approaches to other national or global challenges (100-word maximum)*
8. **Budget:** Provide a full cost budget in the table format below. FTEs and WYEs are based on the portion of a full year (1,880 hours). Costs should be represented in full dollar amounts. Civil Service labor shall account for at least 50 percent of the total cost of the project. The total project cost shall be no more than \$50,000. All funds must be obligated and costed before September 30, 2009. The Total

Cost shall not exceed \$50,000. Subtract any Center, Mission Directorate, Program or Project Contributions from the Total Cost to determine the Required Funding.

<b>BUDGET</b>	<b>Labor Hrs</b>	<b>FTEs /WYEs</b>	<b>Costs (\$)</b>
Team Leader		CS FTEs	CS Labor
<i>(first name, last name, center)</i>		<i>(X.XX)</i>	<i>(\$00,000)</i>
Additional Members			
<i>(first name, last name, center)</i>			
Contractors		WYEs	Cont. Labor
<i>(first name, last name, company)</i>			
Procurements, Facilities or Other Costs			Cost (\$)
<i>(specify)</i>			
<b>TOTAL COST</b>			<b><i>\$00,000</i></b>
Supplemental Contributions (if any)			
- Center Contribution			
- MD/Program/Project Contribution			
<b>REQUIRED FUNDING</b>			<b><i>\$00,000</i></b>

9. **Resumes of Team Members** – brief summary of experience (maximum one half-page per member)
10. **Letter(s) of Commitment** – signed by the supervisors of all NASA participants – the letter should indicate that the participant listed in the proposal would be available to work on the project if it is selected and funded. (one page each)
11. **Letter of Commitment for Supplemental Funding, if applicable** – signed by the NASA official with authority to commit funding in support of the proposal.

**Proposal Submission**

Each Center IPP Office shall forward **no more than five proposals** by electronic mail to: [andrew.j.petro@nasa.gov](mailto:andrew.j.petro@nasa.gov) no earlier than 8:00 AM EDT, June 17 and no later than **8:00 PM EDT, June 19, 2009**.

Each proposal shall be in a separate pdf file and each proposal file shall include the two-page proposal, resumes, and letters of commitment for that proposal.

Proposals for projects that are a partnership among more than one NASA Center shall only be counted toward the limit of five proposals for the home center of the Project Leader.

Each Center shall also complete the information requested in a spreadsheet, which will be provided to the Center IPP offices. The spreadsheet will include: Center's priority for the proposal (1 - highest through 5 – lowest), Project Title, Project Leader Name, Total Cost, Requested Funding and Center Point-of-Contact for all proposals. This spreadsheet shall be sent by electronic mail along with the proposals before the deadline of 8:00 PM EDT, June 19, 2009.

## **NASA Innovation Fund Contacts**

### **Headquarters IPP Office:**

Andrew Petro, Phone: 202.358.0310, Email: [Andrew.J.Petro@nasa.gov](mailto:Andrew.J.Petro@nasa.gov)

### **Center IPP Offices (IPP)**

#### **Chief Technologist or relevant officials at each Center (CT)**

### **Ames Research Center:**

IPP: Lisa Lockyer, Phone: 650.604.3009, Email: [Lisa.L.Lockyer@arc.nasa.gov](mailto:Lisa.L.Lockyer@arc.nasa.gov)

CT: Peter Klupar, Phone: 650.604.5309, Email: [Peter.D.Klupar@nasa.gov](mailto:Peter.D.Klupar@nasa.gov)

### **Dryden Flight Research Center:**

IPP: Greg Poteat, Phone: 661.276.3872, Email: [Gregory.A.Poteat@nasa.gov](mailto:Gregory.A.Poteat@nasa.gov)

CT: Brad Flick, Phone: 661.276.3769, Email: [Bradley.C.Flick@nasa.gov](mailto:Bradley.C.Flick@nasa.gov)

### **Glenn Research Center:**

IPP: Kathy Needham, Phone: 216.433.2802, Email: [Kathleen.K.Needham@nasa.gov](mailto:Kathleen.K.Needham@nasa.gov)

CT: George Schmidt, Phone: 216.433.3944, Email: [George.Schmidt@nasa.gov](mailto:George.Schmidt@nasa.gov)

### **Goddard Space Flight Center:**

IPP: Nona Cheeks, Phone: 301.286.8504, Email: [Nona.K.Cheeks@nasa.gov](mailto:Nona.K.Cheeks@nasa.gov)

CT: Peter Hughes, Phone: 301.286.2342, Email: [Peter.M.Hughes@nasa.gov](mailto:Peter.M.Hughes@nasa.gov)

### **Jet Propulsion Laboratory:**

IPP: Andrew Gray, Phone: 818.354.4906, Email: [Gray@jpl.nasa.gov](mailto:Gray@jpl.nasa.gov)

CT: Paul Dimotakis, Phone: 818.393.7600, Email: [Paul.E.Dimotakis@nasa.gov](mailto:Paul.E.Dimotakis@nasa.gov)

### **Johnson Space Center:**

IPP: Michele Brekke, Phone: 281.483.4614, Email: [Michele.A.Brekke@nasa.gov](mailto:Michele.A.Brekke@nasa.gov)

CT: John Saiz, Phone: 281.483.8864, Email: [John.R.Saiz@nasa.gov](mailto:John.R.Saiz@nasa.gov)

**Kennedy Space Center:**

IPP: Alexis Hongamen, Phone: 321.867.3107, Email: [Alexis.Hongamen-1@nasa.gov](mailto:Alexis.Hongamen-1@nasa.gov)

CT: David Bartine, Phone: 321.867.7069, Email: [David.E.Bartine@nasa.gov](mailto:David.E.Bartine@nasa.gov)

**Langley Research Center:**

IPP: Brian Beaton, Phone: 757.864.2192, Email: [Brian.F.Beaton@nasa.gov](mailto:Brian.F.Beaton@nasa.gov)

CT: Dennis Bushnell, Phone: 757.864.8987, Email: [Dennis.M.Bushnell@nasa.gov](mailto:Dennis.M.Bushnell@nasa.gov)

**Marshall Space Flight Center:**

IPP: James Dowdy, Phone: 256.544.7604, Email: [James.F.Dowdy@nasa.gov](mailto:James.F.Dowdy@nasa.gov)

CT: Don Frazier, Phone: 256.544.7825, Email: [Donald.O.Frazier@nasa.gov](mailto:Donald.O.Frazier@nasa.gov)

**Stennis Space Center:**

IPP: Ramona E Travis, Phone: 228.688.3832, Email: [Ramona.E.Travis@nasa.gov](mailto:Ramona.E.Travis@nasa.gov)

CT: Bartt Hebert, Phone: 228.688.3537, Email: [Bartt.J.Hebert@nasa.gov](mailto:Bartt.J.Hebert@nasa.gov)